

IN THE CLAIMS

1. (currently amended): A nucleic acid which encodes a polypeptide consisting essentially of the amino acid sequences of SEQ ID Nos. ~~1 to 38~~ NO:20.

2. (currently amended): A nucleic acid sequence, which encodes a polypeptide having at least 95% amino acid identity with the amino acid sequences of SEQ ID Nos. ~~1 to 38~~ NO:20 and retains the same binding affinity to said polypeptide of SEQ ID Nos. ~~1 to 38~~ NO:20.

3. (currently amended): The A nucleic acid of claim 1, wherein said nucleic acid consists essentially of SEQ ID Nos. ~~39 to 76~~ NO:20 or a sequence complementary thereto.

4. (currently amended): A nucleic acid, wherein said nucleic acid has at least 95% nucleic acid identity with a nucleic acid of SEQ ID Nos. ~~39 to 76~~ NO:20 or a sequence complementary thereto and retains the same binding affinity to said polypeptide of SEQ ID Nos. ~~1 to 38~~ NO:20.

5. (currently amended): A nucleic acid, encoding a polypeptide having an amino acid sequence consisting essentially of 40 consecutive amino acids of SEQ ID NO:20.

~~45 consecutive amino acids of SEQ ID No. 1;~~
~~30 consecutive amino acids of SEQ ID No. 2;~~
~~65 consecutive amino acids of SEQ ID No. 3;~~
~~30 consecutive amino acids of SEQ ID No. 4;~~
~~130 consecutive amino acids of SEQ ID No. 5;~~
~~25 consecutive amino acids of SEQ ID No. 6;~~
~~23 consecutive amino acids of SEQ ID No. 7;~~
~~48 consecutive amino acids of SEQ ID No. 8;~~
~~36 consecutive amino acids of SEQ ID No. 9;~~
~~25 consecutive amino acids of SEQ ID No. 10;~~
~~24 consecutive amino acids of SEQ ID No. 11;~~
~~37 consecutive amino acids of SEQ ID No. 12;~~
~~25 consecutive amino acids of SEQ ID No. 13;~~

~~30 consecutive amino acids of SEQ ID No. 14;~~
~~27 consecutive amino acids of SEQ ID No. 15;~~
~~69 consecutive amino acids of SEQ ID No. 16;~~
~~130 consecutive amino acids of SEQ ID No. 17;~~
~~33 consecutive amino acids of SEQ ID No. 18;~~
~~25 consecutive amino acids of SEQ ID No. 19;~~
~~40 consecutive amino acids of SEQ ID No. 20;~~
~~78 consecutive amino acids of SEQ ID No. 21;~~
~~39 consecutive amino acids of SEQ ID No. 22;~~
~~57 consecutive amino acids of SEQ ID No. 23;~~
~~26 consecutive amino acids of SEQ ID No. 24;~~
~~68 consecutive amino acids of SEQ ID No. 25;~~
~~34 consecutive amino acids of SEQ ID No. 26;~~
~~42 consecutive amino acids of SEQ ID No. 27;~~
~~48 consecutive amino acids of SEQ ID No. 28;~~
~~102 consecutive amino acids of SEQ ID No. 29;~~
~~49 consecutive amino acids of SEQ ID No. 30;~~
~~92 consecutive amino acids of SEQ ID No. 31;~~
~~49 consecutive amino acids of SEQ ID No. 32;~~
~~55 consecutive amino acids of SEQ ID No. 33;~~
~~69 consecutive amino acids of SEQ ID No. 34;~~
~~23 consecutive amino acids of SEQ ID No. 35;~~
~~33 consecutive amino acids of SEQ ID No. 36;~~
~~32 consecutive amino acids of SEQ ID No. 37;~~
or
~~22 consecutive amino acids of SEQ ID No. 38.~~

6. (currently amended): ~~The~~ A nucleic acid of claim 1 or claim 5, wherein said nucleic acid encodes a polypeptide having one to three amino acid substitutions, wherein said substitutions are made with equivalent amino acids.

7. - 11. (cancelled)

12. (currently amended): A recombinant vector ~~containing~~ comprising a nucleic acid according to claim 1.

13. (currently amended): A recombinant vector containing comprising a nucleic acid according to claim 2.

14. (currently amended): A recombinant vector containing comprising a nucleic acid according to claim 3.

15. (currently amended): A recombinant vector containing comprising a nucleic acid according to claim 4.

16. (currently amended): A recombinant vector containing comprising a nucleic acid according to claim 5.

17. (currently amended): The recombinant vector of any one of claims 12 to 16, which is a wherein the nucleic acid is inserted in a pACT11st plasmid or a pAS2ΔΔ plasmid.

18. (currently amended): The recombinant vector of any one of claims 12 to 16, which is wherein the nucleic acid is inserted in pT25, pKT25, pUT18 or pUT18C.

19. (currently amended): The recombinant vector of any one of claims 12 to 16, which is wherein the nucleic acid is inserted in pP6 or pB5.

20. (previously presented) A cell host transformed with a vector according to any one of claims 12 to 16.

21. (previously presented): A set of two nucleic acids consisting essentially of:

(i) a first nucleic acid encoding a Selected Interacting Domain (SID®) polypeptide according to claim 1; and

(ii) a second nucleic acid encoding a prey polypeptide which binds to the SID® polypeptide defined in i).

22. - 23. (cancelled)

24. (currently amended) A composition comprising a set of two nucleic acids, encoding polypeptides, consisting essentially of the following sets: the set SEQ ID NO:132/SEQ ID NO:58.

~~SEQ ID No. 114/SEQ ID No. 39, SEQ ID No. 115/SEQ ID No. 40, SEQ ID No. 115/SEQ ID No. 41, SEQ ID No. 116/SEQ ID No. 42, SEQ ID No. 117/SEQ ID No. 43, SEQ ID No. 118/SEQ ID No. 44, SEQ ID No. 119/SEQ ID No. 45, SEQ ID~~

~~No. 120/SEQ ID No. 46; SEQ ID No. 121/SEQ ID No. 47; SEQ ID No. 122/SEQ ID No. 48; SEQ ID No. 123/SEQ ID No. 49; SEQ ID No. 124/SEQ ID No. 50; SEQ ID No. 125/SEQ ID No. 51; SEQ ID No. 126/SEQ ID No. 52; SEQ ID No. 127/SEQ ID No. 53; SEQ ID No. 128/SEQ ID No. 54; SEQ ID No. 129/SEQ ID No. 55; SEQ ID No. 130/SEQ ID No. 56; SEQ ID No. 131/SEQ ID No. 57; SEQ ID No. 132/SEQ ID No. 58; SEQ ID No. 133/SEQ ID No. 59; SEQ ID No. 134/SEQ ID No. 60; SEQ ID No. 135/SEQ ID No. 61; SEQ ID No. 136/SEQ ID No. 62; SEQ ID No. 137/SEQ ID No. 63; SEQ ID No. 138/SEQ ID No. 64; No. 139/SEQ ID No. 65; SEQ ID No. 140/SEQ ID No. 66; SEQ ID No. 141/SEQ ID No. 67; SEQ ID No. 142/SEQ ID No. 68; SEQ ID No. 143/SEQ ID No. 69; SEQ ID No. 144/SEQ ID No. 70; SEQ ID No. 145/SEQ ID No. 71; SEQ ID No. 146/SEQ ID No. 72; SEQ ID No. 147/SEQ ID No. 73; SEQ ID No. 148/SEQ ID No. 74; SEQ ID No. 149; SEQ ID No. 75; or SEQ ID No. 150/SEQ ID No. 76.~~

25. (cancelled)

26. (previously presented): A complex formed between said set of two polypeptides of claim 24.

27. (currently amended): A method for selecting a molecule which inhibits the binding between a set of two polypeptides wherein said method comprises:

a) cultivating a recombinant host cell containing a reporter gene the expression of which is toxic for said recombinant host cell, said host cell being transformed with two vectors wherein:

i) the first vector contains a nucleic acid comprising a polynucleotide encoding a first hybrid polypeptide containing ~~one of said two a first polypeptides~~ polypeptide encoded by a nucleic acid according to any one of claims 1 to 5 according to claim 23 and a DNA binding domain;

ii) the second vector contains a nucleic acid comprising a polynucleotide encoding a second hybrid polypeptide containing ~~the—a~~ second of ~~said two polypeptides~~ polypeptide which binds with the first polypeptide according to claim 23 and an activating domain capable of activating said toxic reporter gene when the first and the second hybrid polypeptides are interacting; on a selective medium containing the molecule to be tested and allowing the growth of said recombinant host cell when the toxic reporter gene is not activated; and

b) selecting the molecule which inhibits the growth of the recombinant host cell defined in step a).

28. (currently amended): A method for selecting a molecule which inhibits the binding between a set of two polypeptides wherein said method comprises:

ea) cultivating a recombinant host cell containing a reporter gene the expression of which is toxic for said recombinant host cell, said host cell being transformed with two vectors wherein:

iii) the first vector contains a nucleic acid comprising a polynucleotide encoding a first hybrid polypeptide containing ~~one of said two polypeptides~~ a first polypeptide encoded by SEQ ID NO:132 according to claim 24 and a DNA binding domain;

ivii) the second vector contains a nucleic acid comprising a polynucleotide encoding a second hybrid polypeptide containing ~~the—a~~ second of ~~said two polypeptides~~ polypeptide encoded by SEQ ID NO:58 according to claim 24 and an activating domain capable of activating said toxic reporter gene when the first and the second hybrid polypeptides are interacting;

on a selective medium containing the molecule to be tested and allowing the growth of said recombinant host cell when the toxic reporter gene is not activated; and

b) selecting the molecule which inhibits the growth of the recombinant host cell defined in step a).

29. (currently amended): A method for selecting a molecule which inhibits protein-protein interaction of a set of two polypeptides wherein said method comprises the step of:

a) cultivating a recombinant host cell containing a reporter gene the expression of which is toxic for said recombinant host cell, said host cell being transformed with two vectors wherein:

i) the first vector contains a nucleic acid comprising a polynucleotide encoding a first hybrid polypeptide containing ~~one of said set of two polypeptides~~ a first polypeptide encoded by a nucleic acid according to any one of claims 1 to 5 according to claim 23 and the first domain of an enzyme;

ii) the second vector contains a nucleic acid comprising a polynucleotide encoding a second hybrid polypeptide containing ~~the a second of said two polypeptides~~ polypeptide which binds with the first polypeptide according to claim 23 and the second part of said enzyme capable of activating said toxic reporter gene when the first and the second hybrid polypeptides are interacting, said interaction recovering the catalytic activity of the enzyme;

on a selective medium containing the molecule to be tested and allowing the growth of said recombinant host cell when the toxic reporter

gene is not activated; and

b) selecting the molecule which inhibits the growth of the recombinant host cell defined in step a).

30. (currently amended): A method for selecting a molecule which inhibits protein-protein interaction of a set of two polypeptides wherein said method comprises the step of:

a) cultivating a recombinant host cell containing a reporter gene the expression of which is toxic for said recombinant host cell, said host cell being transformed with two vectors wherein:

i) the first vector contains a nucleic acid comprising a polynucleotide encoding a first hybrid polypeptide containing ~~one of said two polypeptides a~~ first polypeptide encoded by SEQ ID NO:132 according to claim 24 and the first domain of an enzyme;

ii) the second vector contains a nucleic acid comprising a polynucleotide encoding a second hybrid polypeptide containing ~~the a~~ second of said two polypeptides polypeptide encoded by SEQ ID NO:58 according to claim 24 and the second part of said enzyme capable of activating said toxic reporter gene when the first and the second hybrid polypeptides are interacting, said interaction recovering the catalytic activity of the enzyme;

on a selective medium containing the molecule to be tested and allowing the growth of said recombinant host cell when the toxic gene is not activated; and

b) selecting the molecule which inhibits the growth of the recombinant host cell defined in step a).

31. - 43. (cancelled)

44. (currently amended): A nucleic acid encoding a marker compound ~~according to claim 42~~ comprising a Selected Interacting Domain (SID®) polypeptide encoded by a nucleic acid according to

any one of claims 1 to 5; and a detectable molecule bound thereto.

45. (currently amended): A recombinant vector comprising ~~inserted therein~~ a nucleic acid according to claim 44.

46. (currently amended): The recombinant vector ~~according to~~ ~~of~~ claim 45, ~~which is~~ wherein the nucleic acid is inserted in pACT11st, pASΔΔ, pT25, pKT25, pUT18, pUT18C, pP6 or pB5.

47. (withdrawn): A recombinant host cell which has been transfected with said recombinant vector according to claim 45.

48. (currently amended): ~~The~~ A recombinant host cell according to claim 45 which is of prokaryotic origin.

49. (currently amended): ~~The~~ A recombinant host cell according to claim 45 which is of eukaryotic origin.

50. (currently amended): ~~The~~ A recombinant host cell according to claim 49 which is a mammalian host cell.

51. - 61. (cancelled)

62. (currently amended): A composition comprising a polynucleotide encoding a Selected Interacting Domain (SID®) polypeptide according to any one of claims 1 to 65, and a carrier.

63. - 73. (cancelled)